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ABSTRACT

This study examined five subscales of the Pennsylvania Educational Quality Assessment self-concept scale, composed largely of items from the Coopersmith Self Esteem Inventory, in terms of socioeconomic status (SES) and sex differences in internal consistency, stability, across time changes in means, and relationship with achievement. In general, internal consistency increased with SES and with grade level. Stability also tended to increase with SES. Results of repeated measures Analysis of Variance revealed significant SES and Time main effects with means increasing linearly with increases in SES and with time. Low positive relationships were found between self-concept and achievement with little difference between SES or sex. (Author)

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# A LONGITUDINAL STUDY OF SELF CONCEPT FROM GRADE 5 TO GRADE 9

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This study examined five subscales of the Pennsylvania Educational Quality Assessment self concept scale, composed largely of items from the Coopersmith (1967) SEI, in terms of SES and Sex differences in internal consistency, stability, across time changes in means and relationship with achievement. In general, internal consistency increased with SES and with grade level. Stability also tended to increase with SES. Results of repeated measures AOV revealed significant SES and Time main effects with means increasing linearly with increases in SES and with time. Low positive relationships were found between self concept and achievement with little difference between SES or sex.

# A Longitudinal Study of Self Concept from Grade 5 to Grade 9

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Self concept as an important educational variable has grown in prominance over the past decade. One's feeling of self worth is regarded as an important ingredient to academic achievement and personal success as well as a valuable outcome of education. In 1965 Pennsylvania's State Board of Education adopted as one of the 10 goals of quality education, the enhancement of children's self concept. Other groups have, likewise officially recognized self concept as a desirable educational goal.

Many studies have shown self concept to be related to achievement, ethnic group membership and socioeconomic status. In his review, Zirkel (1971) points out that much of the research has yielded conflicting results. He describes the varying definitions, instruments and research designs which have been employed in studies of self concept and which have contributed to the inconsistent findings. The present study will not untangle the confused web of findings, but hopefully will contribute to a rather neglected area, that of longitudinal information.

The primary intent of the present investigation was to examine various components of self concept with regard to socioeconomic and sex differences in internal consistency, stability and across time shifts in mean scores.

## METHOD

### Data Base

The data base for this investigation originated from a longitudinal study of the Pennsylvania Grade 5 Educational Quality Assessment Package. In 1969

approximately 20,000 5th graders were tested as part of a norming operation. Of these, 654 were selected for retesting with the same instruments in 1971, as 7th graders. The procedures for selecting the longitudinal sample, descriptive statistics on student background characteristics for the 1969 norm sample and the longitudinal sample and statistical analyses for establishing the representativeness of the resultant longitudinal sample are detailed in another report (Kohr, 1972). This same group of youngsters was rescheduled for testing in the fall of 1973 as 9th graders. Data was obtained for 565 children, although the present analysis focuses on 526 cases for which the relevant data was complete. The sample was composed of 189 low SES, 221 middle SES and 116 high SES students. Of the 526 cases, 46% were from an urban/suburban area and 54% resided in a small town or rural environment. The sample was 92% white and 8% non-white with 48% male and 52% female.

Definition of Socioeconomic Status

Socioeconomic status was based on father's educational level and partitioned into three categories. Low SES was defined as some grade school up through some high school. Middle SES was defined as a high school graduate but no further training. High SES was defined as some post high school college or training up through a PhD or professional degree. For about 20% of the cases for which no father's educational level was available, mother's educational level was substituted.

Measurement of Self Concept

The self concept scale used in this study is composed of 45 items taken from the Coopersmith (1967) Self Esteem Inventory (CSEI) with 8 additional items which focus on "locus of control" supplied by ETS. Scores for five subscales

were developed. For brevity the total scale will be referred to as TOTAL and the subscales as GENL (general self - 22 items), CONTL (control of environment - 8 items), RELAT (relations with others or social self - 7 items), HOME (home/parents - 8 items) and SCHL (school/academic self - 8 items). Each item was responded to in terms of "like me" or "unlike me" and weighted accordingly, depending on the positive or negative flavor of the content. The higher the total and subscale scores the more positive the self concept. The instrument was administered to 5th grade students from 20 Pennsylvania elementary schools in October, 1969 and readministered to the same students as 7th graders in October, 1971 and again in October 1973 when in the 9th grade.

## RESULTS

### Internal Consistency

Presented in Table 1 is the coefficient alpha index of reliability for each subscale at each SES-grade level combination. An increase in internal consistency should be anticipated as a result of a general "firming up" of attitudes through the pre and middle adolescent years. In general, the data confirms this expectancy. For most of the subscales a definite tendency for internal consistency to increase across grade levels can be observed. Several exceptions to the general rule can be noted. For example, very little change took place for the SCHL subscale in the middle and high SES groups. An inconsistent pattern occurred for CONTL and SCHL in the low SES group and for RELAT in the high SES group. The only consistent decrease in coefficient alpha was found for the CONTL subscale in the high SES group.

A general tendency for coefficient alpha to increase across SES levels within a grade level can also be noted, although the magnitude is generally

Table 1

Internal Consistency of Self Concept Subscales and Total Scale by Socioeconomic Level and Grade Level

| Scale | No. Items | Grade 5 SES Level Low | Grade 5 SES Level Middle | Grade 5 SES Level High | Grade 5 Total Sample | Grade 7 SES Level Low | Grade 7 SES Level Middle | Grade 7 SES Level High | Grade 7 Total Sample | Grade 9 SES Level Low | Grade 9 SES Level Middle | Grade 9 SES Level High | Grade 9 Total Sample |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GENL | 22 | .64 | .71 | .69 | .68 | .70 | .75 | .75 | .74 | .76 | .79 | .78 | .78 |
| CONTL | 8 | .41 | .45 | .54 | .48 | .52 | .53 | .49 | .54 | .45 | .56 | .47 | .54 |
| RELAT | 7 | .36 | .52 | .63 | .50 | .55 | .60 | .58 | .58 | .58 | .59 | .64 | .60 |
| HOME | 8 | .56 | .59 | .60 | .59 | .65 | .69 | .68 | .69 | .80 | .78 | .71 | .78 |
| SCHL | 8 | .55 | .62 | .58 | .59 | .50 | .59 | .59 | .57 | .61 | .60 | .64 | .61 |
| TOTAL | 53 | .82 | .85 | .86 | .85 | .84 | .87 | .87 | .87 | .88 | .88 | .86 | .88 |

less than that found across grade levels. Five subscales showed an inconsistent pattern across SES levels while one subscale, HOME at grade 9, revealed a notable decrease.

Not shown in table form are internal consistency estimates for males and females. These were found to differ very little and, hence, of little interest to researchers.

Stability

Summarized in Tables 2 and 3 are the across time correlations for the self concept total scale and subscales. These correlations are presented for the total sample (Table 3) and are also broken down by socioeconomic group (Table 2) and by sex (Table 3). For the total sample stability coefficients for the two year period for grade 7 to 9 ($r_{79}$) are greater than those for the grade 5 to 7 ($r_{57}$) interval. This finding is consistent with the general tendency of correlations for adjacent time periods to increase with age during the developmental years. Likewise, stability over the four year interval from grade 5 to grade 9 ($r_{59}$) tends to be somewhat lower than for the two year intervals.

When viewing across time correlations separately for the three SES groups a differential effect emerges. Larger increases in two year stability coefficients ($r_{57}$ to $r_{79}$) were found for the low SES group than for the middle group, whereas the high SES group exhibited a tendency toward slight decreases in stability. There was also a tendency toward an increase in $r_{57}$ as SES increased, however, the direction of change did not remain consistent from $r_{57}$ to $r_{79}$. Significant differences were found between stability coefficients for various SES levels. For the $r_{57}$ coefficient, significant differences were found between the high and low SES groups for GENL ($z = 2.72$, $p < .01$), CONTL ($z = 3.16$, $p < .01$) and for the RELAT $r_{79}$ coefficient ($z = 2.52$, $p < .05$). Significant differences were also found between the middle and low SES groups for CONTL, $r_{57}$ ($z = 2.40$,

Table 2

Summary of Across Time Correlations for Self Concept Scales Within Socioeconomic Groups

| | Scale | $r_{57}$ | $r_{59}$ | $r_{79}$ |
|---|---|---|---|---|
| LOW SES (N=189) | GENL | .26 | .28 | .52 |
| | CONTL | .17 | .21 | .35 |
| | RELAT | .37 | .32 | .56 |
| | HOME | .38 | .20 | .34 |
| | SCHL | .32 | .24 | .39 |
| | TOTAL | .41 | .31 | .55 |
| MIDDLE SES (N=221) | GENL | .43 | .36 | .50 |
| | CONTL | .39 | .30 | .34 |
| | RELAT | .34 | .16 | .37 |
| | HOME | .36 | .25 | .54 |
| | SCHL | .35 | .36 | .44 |
| | TOTAL | .54 | .43 | .59 |
| HIGH SES (N=116) | GENL | .53 | .34 | .44 |
| | CONTL | .50 | .38 | .45 |
| | RELAT | .34 | .11 | .32 |
| | HOME | .33 | .26 | .40 |
| | SCHL | .38 | .40 | .41 |
| | TOTAL | .56 | .45 | .50 |

Table 3

Summary of Across Time Correlations for Self Concept Scales Within Sex Groups and for the Total Sample

| | Scale | $r_{57}$ | $r_{59}$ | $r_{79}$ |
|---|---|---|---|---|
| MALE (n=254) | GENL | .43 | .41 | .50 |
| | CONTL | .33 | .31 | .42 |
| | RELAT | .36 | .17 | .44 |
| | HOME | .37 | .30 | .49 |
| | SCHL | .35 | .35 | .34 |
| | TOTAL | .54 | .44 | .54 |
| FEMALE (N=272) | GENL | .38 | .29 | .51 |
| | CONTL | .37 | .30 | .36 |
| | RELAT | .36 | .27 | .43 |
| | HOME | .38 | .21 | .43 |
| | SCHL | .35 | .33 | .50 |
| | TOTAL | .51 | .36 | .59 |
| TOTAL SAMPLE (N=526) | GENL | .41 | .34 | .51 |
| | CONTL | .35 | .30 | .39 |
| | RELAT | .36 | .22 | .44 |
| | HOME | .38 | .25 | .45 |
| | SCHL | .35 | .34 | .43 |
| | TOTAL | .52 | .41 | .58 |

$p < .05$), RELAT, $r_{79}$ ($z = 2.45$, $p < .05$) and HOME, $r_{79}$ ($z = 2.51$, $p < .05$). Stability coefficients for males and females are essentially the same and are shown primarily for the benefit of those interested in sex difference. Only one correlation was found to differ significantly between sex groups, an effect which is within chance expectancy among the set of 18 pairs of stability coefficients. In this single instance $r_{79}$ for SCHL was significantly higher for the female group ($z = 2.24$, $p < .05$).

Analysis of Variance Results

Summarized in Table 4 are the means and standard deviations for each self concept subscale across SES and grade levels. Table 5 summarizes the means and standard deviations across grade levels and sex groups. A repeated measure AOV was conducted for each scale in which SES (or sex) served as a between subjects dimension and grade level as a repeated measure or within subjects dimension. Tests were performed to determine whether the independent groups covariance matrices were homogeneous and to test the assumption of homogeneous variances and covariances between repeated measures (Winer, 1962, pp. 369-371). Bartlett's test for homogeniety of variance was also applied to the independent group variances (Guenther, 1965, pp. 135-142). The SES group variances were found to be homogeneous in all analyses as were the variances for sex groups. Following a significant F, a pairwise contrast of individual means was conducted via the Tukey WSD technique. In the computation of the general t statistic the Behrens Fisher technique was employed along with Welch's solution for df (Kirk, 1968, p. 98). These procedures were incorporated in order to exercise better control over type I errors while maintaining power at an acceptable level in the unequal n case (Games, 1971). Tables 6 and 9 provide a concise summary of AOV results and Tables 7 and 8 contain the followup contrasts of individual means. An a priori probability level of .01 was established for all significance tests which follow.

Table 4

Summary of Means and Standard Deviations Across Grade Levels for each Socioeconomic Group

| Scale/SES | Grade 5 Mean | Grade 5 SD | Grade 7 Mean | Grade 7 SD | Grade 9 Mean | Grade 9 SD | Overall Mean | Overall SD |
|---|---|---|---|---|---|---|---|---|
| GENL - L | 34.95 | 3.54 | 35.30 | 3.70 | 36.59 | 3.86 | 35.61 | 4.84 |
| M | 35.72 | 3.70 | 36.39 | 3.74 | 37.16 | 3.96 | 36.43 | 5.13 |
| H | 36.41 | 3.54 | 37.53 | 3.65 | 38.09 | 3.85 | 37.34 | 5.03 |
| Overall | 35.60 | 3.61 | 36.25 | 3.71 | 37.16 | 3.90 | | |
| CONTL - L | 13.80 | 1.60 | 13.85 | 1.52 | 14.32 | 1.36 | 13.83 | 1.82 |
| M | 13.79 | 1.58 | 14.16 | 1.53 | 14.67 | 1.37 | 14.21 | 1.94 |
| H | 14.00 | 1.63 | 14.68 | 1.35 | 15.13 | 1.05 | 14.60 | 1.86 |
| Overall | 13.66 | 1.60 | 14.17 | 1.49 | 14.64 | 1.30 | | |
| RELAT - L | 11.42 | 1.51 | 11.88 | 1.57 | 12.43 | 1.46 | 11.91 | 2.05 |
| M | 11.97 | 1.51 | 12.35 | 1.64 | 12.71 | 1.44 | 12.28 | 1.93 |
| H | 12.02 | 1.71 | 12.40 | 1.55 | 12.81 | 1.45 | 12.41 | 1.94 |
| Overall | 11.79 | 1.55 | 12.11 | 1.59 | 12.63 | 1.45 | | |
| HOME - L | 13.22 | 1.31 | 13.05 | 1.96 | 12.88 | 2.47 | 13.05 | 2.65 |
| M | 13.61 | 1.82 | 13.65 | 2.00 | 13.26 | 2.39 | 13.51 | 2.77 |
| H | 13.81 | 1.83 | 13.92 | 1.76 | 13.72 | 2.07 | 13.82 | 2.43 |
| Overall | 13.52 | 1.82 | 13.50 | 1.94 | 13.22 | 2.35 | | |
| SCHL - L | 12.74 | 1.92 | 12.44 | 1.87 | 12.26 | 1.99 | 12.48 | 2.46 |
| M | 13.39 | 1.83 | 12.59 | 1.91 | 12.73 | 1.96 | 12.90 | 2.53 |
| H | 13.30 | 1.86 | 13.38 | 1.86 | 12.96 | 2.03 | 13.21 | 2.57 |
| Overall | 13.14 | 1.87 | 12.71 | 1.88 | 12.61 | 1.99 | | |
| TOTAL - L | 85.63 | 7.50 | 86.52 | 7.93 | 88.48 | 8.48 | 86.88 | 10.85 |
| M | 88.48 | 7.92 | 88.95 | 8.38 | 90.50 | 8.36 | 89.31 | 11.76 |
| H | 89.55 | 8.23 | 91.91 | 7.75 | 92.72 | 7.66 | 91.39 | 11.15 |
| | 87.70 | 7.84 | 88.73 | 8.08 | 90.26 | 8.25 | | |

Table 5

Summary of Means and Standard Deviations Across Grade Levels for Male and Female Groups

| Scale/SEX | Grade 5 Mean | Grade 5 SD | Grade 7 Mean | Grade 7 SD | Grade 9 Mean | Grade 9 SD | Overall Mean | Overall SD |
|---|---|---|---|---|---|---|---|---|
| GENL - M | 35.67 | 3.71 | 36.56 | 3.81 | 37.77 | 3.70 | 36.67 | 5.14 |
| F | 35.53 | 3.58 | 35.96 | 3.76 | 36.60 | 4.06 | 36.03 | 5.09 |
| Overall | 35.60 | 3.65 | 36.25 | 3.78 | 37.16 | 3.89 | | |
| CONTL - M | 13.57 | 1.62 | 14.12 | 1.57 | 14.63 | 1.41 | 14.10 | 2.00 |
| F | 13.75 | 1.62 | 14.21 | 1.47 | 14.66 | 1.27 | 14.21 | 1.89 |
| Overall | 13.66 | 1.62 | 14.17 | 1.52 | 14.64 | 1.34 | | |
| RELAT - M | 11.79 | 1.56 | 12.00 | 1.68 | 12.55 | 1.52 | 12.11 | 2.04 |
| F | 11.78 | 1.60 | 12.21 | 1.53 | 12.71 | 1.40 | 12.23 | 1.97 |
| Overall | 11.79 | 1.58 | 12.11 | 1.60 | 12.63 | 1.45 | | |
| HOME - M | 13.44 | 1.83 | 13.49 | 1.88 | 13.49 | 2.21 | 13.46 | 2.63 |
| F | 13.58 | 1.84 | 13.50 | 2.04 | 13.03 | 2.49 | 13.37 | 2.76 |
| Overall | 13.52 | 1.83 | 13.50 | 1.97 | 13.22 | 2.36 | | |
| SCHL - M | 13.15 | 1.89 | 12.72 | 1.89 | 12.70 | 1.89 | 12,86 | 2.46 |
| F | 13.13 | 1.89 | 12.71 | 1.94 | 12.53 | 2.10 | 12.79 | 2.64 |
| Overall | 13.14 | 1.89 | 12.71 | 1.92 | 12.61 | 2.00 | | |
| TOTAL - M | 87.62 | 7.92 | 88.89 | 8.31 | 91.09 | 8.18 | 89.20 | 11.67 |
| F | 87.77 | 8.07 | 88.58 | 8.33 | 89.49 | 8.53 | 88.61 | 11.66 |
| Overall | 87.70 | 8.00 | 88.73 | 8.32 | 90.26 | 8.36 | | |

Socioeconomic Differences

As shown in Table 6 statistically significant SES and Grade main effects were found in each analysis. A significant interaction was found in only one analysis. For all but one analysis then, the change in mean scores across time can be described in terms of the overall grade level means and socioeconomic differences by the overall SES means. A description of the AOV results for each subscale follows.

Subscale GENL demonstrated progressively higher means across SES levels and the follow-up tests found the difference between the low and high SES groups to be statistically significant. Likewise, the means increased from grades 5 through 9 with each pairwise contrast revealing a significant difference. The interaction of SES and Grade was not significant. These findings suggest that the general self perceptions of higher SES children tend to be more positive than those of lower SES children and that there is a general tendency for these perceptions to become slightly more positive across time.

Subscale CONTL revealed statistically significant differences for each pairwise contrast performed between SES levels and between grade levels. The SES by Grade interaction was non-significant. Again, the means increased across SES levels and across grade levels. These findings indicate that feelings of control over one's environment tend to increase as SES increases and as the child becomes older.

For the RELAT subscale an increase in means across SES levels was observed. The followup tests revealed significant differences between low and middle SES groups and between low and high SES groups. Each of the pairwise contrasts for grade levels was significant. Again, the interaction of SES with Grade was non-significant. It would appear that perceived relationships with others is viewed as somewhat less favorable for the lower SES child than for the middle

Table 6

Summary of F-Ratios Obtained in Repeated
Measures Analysis of Variance: Socioeconomic Groups

| Variable | SES | Grade | SES x Grade |
|---|---|---|---|
| GENL | 12.99* | 38.87* | 0.94 |
| CONTL | 18.84* | 86.73* | 0.74 |
| RELAT | 8.45* | 60.61* | 0.93 |
| HOME | 9.85* | 5.02* | 0.54 |
| SCHL | 9.72* | 17.37* | 3.46* |
| TOTAL | 17.94* | 26.15* | 1.22 |
| df = | 2,523 | 2,1046 | 4,1046 |

Table 7

Summary of WSD Tests Following a
Significant SES Main Effect

| Variable | Pairwise Contrasts Between SES Levels: Low-Middle | Low-High | Middle-High |
|---|---|---|---|
| GENL | 2.83 | 5.06* | 2.76 |
| CONTL | 3.53* | 6.08* | 3.20* |
| RELAT | 3.27* | 3.70* | 0.99 |
| HOME | 3.01* | 4.27* | 1.79 |
| SCHL-5 | 3.48* | 2.53 | 0.41 |
| SCHL-7 | 0.79 | 4.25* | 3.65* |
| SCHL-9 | 2.39 | 2.92 | 0.97 |
| TOTAL | 3.76* | 5.86* | 2.78 |

Table 8

Summary of WSD Tests Following a
Significant Grade Main Effects

| Variable | Pairwise Contrasts Between Grade Levels: Grade 5-7 | Grade 5-9 | Grade 7-9 |
|---|---|---|---|
| GENL | 3.69* | 8.23* | 5.46* |
| CONTL | 6.48* | 12.82* | 6.93* |
| RELAT | 4.12* | 10.24* | 7.35* |
| HOME | 0.21 | 2.55 | 2.72 |
| SCHL-L | 1.85 | 2.72 | 1.16 |
| SCHL-M | 5.56* | 4.52* | 1.02 |
| SCHL-H | 0.40 | 1.74 | 2.15 |
| TOTAL | 2.98* | 6.61* | 4.59* |

*Denotes significance beyond .01 level.

or high SES child in this sample. This finding conflicts with many studies which suggest that a greater degree of social interaction and cohesion among lower SES children. The present data also suggests a slight but progressive increase in one's perceived ability to relate with others through grade 5 to 9.

The trend toward higher means with increases in SES level was also found for the HOME subscale. Significant differences were found between low and middle SES and between low and high SES. Although the Grade main effect was significant none of the pairwise contrasts reached significance at the predetermined .01 probability level. The general pattern was a slight decrease in means across grade levels for this subscale. The SES by Grade interaction was non-significant. These findings suggest that low SES children view their home climate as less positive than their peers who come from higher SES conditions. The perceived relationship with family seemed to show a slight decline across time; however, the individual contrasts did not reach significance.

A significant SES by Grade interaction was found for the SCHL subscale, suggesting that the pattern of means across grade levels is different at various SES levels. To examine SES differences a separate one way AOV was conducted at each grade level. Each of these analyses revealed significant F ratios and the results of the pairwise contrasts are shown in Table 7. At grade 5 the middle SES group had a significantly higher mean than the low SES group. The high SES group was found to have a significantly larger mean than either the middle or low SES groups at grade 7. At grade 9 the trend was still toward higher means across SES levels although none of the contrasts reached significance at the .01 level. Also analyzed separately by SES group was the pattern of means across grade levels. The progressive decline in means across grades was not found to be significant for the low SES group. The decline in means for grades

5 to 7 and 5 to 9 were found to be significant for the middle SES group. None of the grade level means were found to be significantly different within the high SES group. A graph of this interaction effect is shown in Figure 1.

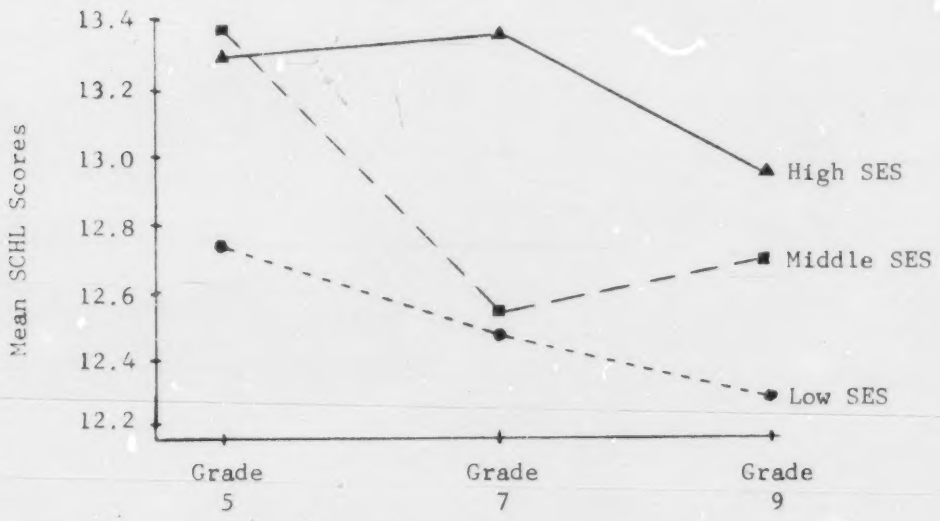


Figure 1. Graph of the SES x Grade interaction for SCHL subscale

From these analyses self image within the school setting can be seen to follow the profile one might expect. The general overall pattern of decline is present along with somewhat different patterns for the individual SES groups. As one might anticipate, the academically more successful students who characterize the higher SES group show higher means than their low SES counterparts, particularly at grade 7. One could reasonably hypothesize that the downward slope for the low SES group would have been much steeper had all the students who had been tested in grades 5 and 7 still been enrolled at grade 9. Proportionally, the greatest loss of cases from the grade 7 to grade 9 test period was from the low SES strata.

For the total self concept scale, TOTAL, significant differences were found between the low and middle SES groups as well as between the low and high SES

groups. Again, the means increased as SES level increased. The means also increased with grade level and each pairwise contrast was statistically significant. The interaction of SES and Grade was non-significant. The total self concept is of course a reflection of the subscales of which it is composed. Not surprisingly then one finds a general tendency for low SES children to have a less positive self image than the middle and high SES children in this study. There would appear to be a general tendency for self esteem to become somewhat more positive as the child becomes older.

Sex Differences

Summarized in Table 9 are the results of repeated measure AOV's in which Sex is the between groups factor and Grade the within groups factor.

Table 9

Summary of F-Ratios Obtained in Repeated Measures Analysis of Variance: Sex Groups

| Variable | Sex | Grade | Sex x Grade |
|---|---|---|---|
| GENL | 6.09 | 39.12* | 4.27 |
| CONTL | 1.09 | 86.72* | 0.47 |
| RELAT | 1.42 | 60.63* | 1.02 |
| HOME | 0.40 | 5.06* | 3.79 |
| SCHL | 0.31 | 17.19* | 0.45 |
| TOTAL | 1.00 | 26.24* | 3.26 |
| df = | 1,524 | 2,1048 | 2,1048 |

*Denotes significance beyond .01 level.

As shown in Table 9, none of the analyses revealed a significant Sex main effect. Also non-significant were the Sex by Grade interactions. In each analysis the Grade main effect was significant at the predetermined .01 probability level. The pattern of overall grade level means for each scale is, of course, the same as described above for socioeconomic conditions. To summarize, interesting male-

female differences in terms of self concept were not found in these longitudinal data.

Relationship of Self Concept to Achievement

Included in the instrument battery given at grades 5 and 7, but not at grade 9, was an achievement test comprised of 60 items, divided equally into verbal and mathematics sections. The 30 item verbal section consisted entirely of verbal analogies with KR-20 estimates of internal consistency hovering around .75. A content analysis of the 30 item mathematics section revealed the following breakdown: number concept (7 items), arithmetic skills (18 items), measurement and conversion (2 items), geometry (2 items) and algebraic notions (6 items). Certain items represent more than one content area, which accounts for the number of items within parentheses summing to more than 30. Averaging about .75 were KR-20 reliability estimates for the math section. For purposes of analysis the composite score was used as an overall index of achievement.

Although these sections were part of the grade 5 instrument package they were judged to be appropriate for use at grade 7. As expected, mean scores increased from grade 5 to grade 7, but there was still adequate ceiling on the test. For the 60 item composite the observed grade 5 and 7 means were 33.46 and 43.40, respectively. The grade 5 and 7 standard deviations of 8.89 and 8.99 were remarkably similar, indicating that the variability at grade 7 did not suffer a constriction due to a ceiling effect.

Presented in Table 10 are the correlations of the grade 7 self concept total scale and subscales with grade 7 composite achievement. Since a number of studies have shown different magnitudes of relationship between self concept and achievement for males and females, correlations are presented for sex groups separately. Separate correlations are also shown for each socioeconomic groups as well as for the total sample.

Table 10

Summary of Correlations Between Self Concept Scales and Composite Achievement at Grade 7

| | SEX | | SOCIOECONOMIC GROUPS | | | Total |
|---|---|---|---|---|---|---|
| Scale | Males (N=254) | Females (N=272) | Low (N=189) | Middle (N=221) | High (N=116) | Sample (N=526) |
| GENL-7 | .26 | .22 | .14 | .26 | .15 | .24 |
| CONTL-7 | .39 | .36 | .24 | .38 | .42 | .37 |
| RELAT-7 | .13 | .25 | .19 | .09 | .21 | .18 |
| HOME-7 | .12 | .13 | .03 | .13 | .08 | .12 |
| SCHL-7 | .12 | .26 | .09 | .16 | .24 | .19 |
| TOTAL-7 | .27 | .30 | .17 | .27 | .27 | .29 |

The correlations presented for grade 7 are very similar to those obtained between grade 5 subscale score and grade 5 composite achievement. In general, the correlations remained at about the same magnitude or tended to increase, although not significantly so. The lone exception occurred for the HOME subscale within all groups. Here, the correlations decreased by 6 to 15 points, but the difference is not statistically significant. The following description of results obtained at grade 7 could also apply to grade 5.

A comparison of the correlations obtained from males and females failed to produce a consistent picture of higher relationships for either sex. Nor did any of the correlations for males differ significantly from those obtained for females. Similar comparisons for socioeconomic groups failed to reach significance. Subscale CONTL consistently showed the highest correlation with achievement while HOME showed the weakest relationship. Given the number of cases in each sex group most of the correlations are significantly greater than zero ($r=.18$, $df=200$, $p=.01$). About half of the correlations shown for the

various socioeconomic groups reach statistical significance while all of the total sample correlations are significant at the .01 level. These findings are consistent with many studies which report a low, but significant relationship with achievement. The stronger relationship of CONTL with achievement is consistent with the findings of Coleman, et al (1966).

Socioeconomic Differences Expressed on the Item Level

In her study of self concept Trowbridge (1972) examined socioeconomic differences on the SEI subscales by examining individual items. This enabled her to elucidate on the nature of the observed differences in mean subscale scores. That useful strategy will be employed in the present paper to identify items which display the greatest difference among SES groups with respect to the incidence of positive responses. A positive response is here defined as a "like me" response to a positively worded statement and an "unlike me" response to a negatively worded item. Differences in response frequency for male/female groups were not explored since none of the AOV's had shown significant sex effects.

Presented in Table 11 are items which (a) exhibited at least 10 percentage points difference between the SES groups having the highest and lowest frequency of positive responses at all three grade levels, or (b) displayed a difference of 10 percentage points in two of the three grade levels. An exception to the rule was accorded the RELAT subscale, where none of the items met either criterion, but where it seemed desirable to include at least two items for the reader to view.

A general perusal of Table 11 reveals a strong tendency for positive responding to increase in frequency as SES level increases and as grade level increases. This reflects the pattern already found in the analysis of subscale means. One might anticipate finding some items on which lower SES gave more

Table 11

Self Concept Items Exhibiting the Greatest Socioeconomic Differences in the Incidence of Positive Responses

| | | Grade 5 | | | Grade 7 | | | Grade 9 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Subscale | Item Statement | L | M | H | L | M | H | L | M | H |
| GENL | I'm pretty sure of myself. | 70 | 74 | 84 | 77 | 80 | 87 | 72 | 85 | 75 |
| | Someone always has to tell me what to do. | 63 | 69 | 79 | 69 | 75 | 81 | 79 | 80 | 92 |
| | Things are all mixed up in my life. | 53 | 6i | 63 | 63 | 74 | 75 | 65 | 69 | 75 |
| | I often wish I were someone else. | 52 | 51 | 54 | 39 | 45 | 51 | 47 | 56 | 63 |
| | I can make up my mind without too much trouble. | 57 | 55 | 64 | 67 | 71 | 85 | 68 | 76 | 84 |
| | I get upset easily when I get scolded. | 50 | 50 | 49 | 39 | 40 | 53 | 46 | 47 | 60 |
| CONTL | Every time I plan to do something (makes a plan), something goes wrong. | 37 | 44 | 47 | 36 | 50 | 51 | 47 | 53 | 59 |
| | There isn't much chance for a person like me to succeed in life. | 69 | 73 | 79 | 72 | 80 | 83 | 81 | 88 | 93 |
| | If I work hard, I'll be able to go to college. | 78 | 83 | 88 | 77 | 79 | 91 | 69 | 76 | 91 |
| | Luck decides most things that happen to me. | 50 | 52 | 59 | 46 | 56 | 72 | 59 | 67 | 81 |
| RELAT | I don't like to be with other people. | 77 | 87 | 84 | 83 | 88 | 93 | 87 | 90 | 91 |
| | Kids pick on me very often. | 58 | 64 | 64 | 62 | 67 | 76 | 77 | 79 | 83 |

Table 11 Continued

| Subscale | Item Statement | Grade 5 L | Grade 5 M | Grade 5 H | Grade 7 L | Grade 7 M | Grade 7 H | Grade 9 L | Grade 9 M | Grade 9 H |
|---|---|---|---|---|---|---|---|---|---|---|
| HOME | My parents usually consider my feelings. | 58 | 59 | 73 | 68 | 74 | 78 | 57 | 67 | 75 |
| | No one pays much attention to me at home. | 62 | 76 | 77 | 69 | 79 | 84 | 76 | 76 | 87 |
| | There are many times when I'd like to leave home. | 53 | 56 | 62 | 42 | 51 | 60 | 40 | 51 | 59 |
| SCHL | I find it very hard to talk in front of the class. | 44 | 50 | 57 | 38 | 40 | 51 | 32 | 40 | 42 |
| | I like to be called on in class. | 66 | 75 | 84 | 60 | 62 | 74 | 42 | 45 | 55 |
| | I often get discouraged in school. | 57 | 63 | 62 | 50 | 59 | 66 | 59 | 62 | 70 |
| | I'm proud of my school work. | 64 | 72 | 70 | 64 | 67 | 79 | 57 | 67 | 66 |

positive responses, but this is clearly not the case in the Pennsylvania data. By examining Table 11 one can get some feeling for the types of items which contributed most heavily to SES divergence on the subscale means. Since the SES effect is so consistent throughout, no further description will be given.

## DISCUSSION

Self concept was studied longitudinally with particular concern for SES and sex differences in internal consistency, stability across time, mean scores and relationship to achievement. Analyzed were five self concept subscales, four of which belong to the Coopersmith (1967) SEI. Throughout the data the effect of SES could readily be detected. Sex differences were quite negligible in all aspects of the analysis.

Generally, internal consistency was found to increase as grade level increased and there was a tendency for higher SES groups to exhibit higher internal consistency, particularly at grade 5, although the advantage diminished with age.

Stability varied according to SES group. In the grade 5 to 7 interval the total scale and most subscales had higher stability coefficients in the higher SES categories. For the grade 7 to 9 interval the stability picture became a mixed bag with about three scales increasing with SES, two decreasing and one scale with almost identical coefficients. The total sample stability coefficient of .52 (grade 5 to 7), .41 (grade 5 to 9) and .58 (grade 7 to 9) are all considerably lower than the .70 (grade 5 to 8) figure reported by Coopersmith (1967) on a sample of 56 children.

Significant changes in mean scores across time were found on the total scale and the general self, control of environment and relationship with others sub-

scales. A slight tendency for scores to decline was found on the home climate subscale. The SES by Grade interaction on the image in school subscale was expressed as a tendency for the high SES group to exhibit little change while scores showed a sharp decline from grade 5 to 7 for the middle SES group. A slight decline was also noted for the low SES group. Trowbridge (1967) found that SEI total scores decreased from grade 3 to grade 8. No comparison can be made across grades with the SEI subscales since she did not report subscale means by grade. The discrepancy in findings could be due, at least in part, to methodological differences. The Trowbridge study was cross-sectional as opposed to longitudinal.

Analyses consistently revealed higher means as SES level increased. This general finding was also noted by Beers (1973) in a study involving fifth graders in Pennsylvania who were administered the identical self concept scale as used in the present investigation. Trowbridge (1972), by contrast, reported higher means for low SES children on all SEI subscales except home climate where the higher mean was associated with the high SES group. Soares and Soares (1969) disadvantaged students had higher self perceptions on five indicators of self concept than their more advantaged counterparts. These differences are hard to reconcile. A clue as to why certain studies have found low SES children to have a more positive self image is provided by Soares and Soares. They theorize that disadvantaged children who are exposed predominantly to other disadvantaged people at school and the neighborhood function within the expectations of teachers, parents and peers. In this setting the disadvantaged student can reflect a positive feeling of self worth. Beers (1973), presented data concerning self concept of racial groups within schools of varying socioeconomic composition and found black pupils expressing a more positive self image when at least one-third of their peers were from low SES families. It is possible then, that the present

sample did not include disadvantaged students from schools where disadvantaged students were in the majority.

The relationship of self concept to achievement was found to be in the low positive range for most of the subscales. The strongest correlations with achievement were associated with the control of environment subscale. This appears to be consistent with Coleman, et al (1966) who found environmental control to be more strongly related to achievement than self concept of ability. In the present study the self image in school subscale probably bears a fair resemblance to self concept of ability. This subscale was weakly, but significantly related to achievement. The belief in one's control of environment and self concept of ability were found to have significant partial correlations (IQ partialed out) with achievement by Siegelman (1973).

Some studies have found different magnitudes of relationship between self concept and achievement for various subgroups. Campbell (1965) found a low positive correlation between the SEI and the achievement of fourth, fifth and sixth grade pupils. There was also some indication of higher relationships for males than for females. In a study with children of the same age range, Bledsoe (1967) reported significant correlations for males and nonsignificant relationships for girls. In the present study females could be said to exhibit significant correlations for the image in school and relationship with other subscales while the correlations for males were nonsignificant. This finding does not mean that the correlations for males are significantly lower than those obtained for females. Frequently the investigator has not tested whether a correlation obtained for one group differs in a statistically significant way from a correlation obtained for another group. In the present study none of the correlations between self concept and achievement were significantly different in terms of male/female or socioeconomic group comparisons.

Large differences among socioeconomic groups in the frequency with which individual items were responded to in a positive fashion were not observed in the present data. Neither were there any items on which the low SES group consistently responded in a more positive manner than the higher SES groups. The general overall tendency was for positive responses to increase with SES. One subscale, relationship with others, revealed only minor differences in the frequency of positive responses to individual items.

The present study suggests that members of lower SES groups are more likely than those from higher SES backgrounds to have low self esteem. These children broadly define a target group toward which programs designed to affect self concept might be aimed. Of particular importance is the trend toward a declining self image with regard to the school setting found for all but the high SES children in the study.

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